



Germ-zapping robots find a home at Highland Hospital

OAKLAND — Mitch and Venus, two recent additions to Highland Hospital's cleaning crew, could show Rosie, the robot housekeeper in the 1960s cartoon series "The Jetsons," a thing or two.

Mitch and Venus are R2D2-looking robots that, in a matter of minutes, can KO some of the world's toughest germs. With pulses of ultraviolet light beamed from mushroom-shaped towers that rise from their canister-shaped bodies, they disinfect hospital spaces when nobody is around.

Since September, when the hospital bought the two 3-foot-tall, 155-pound robots for \$150,000 each, they have been busy around the clock, working in patient rooms, operating rooms, public restrooms, utility rooms, any place that needs their services, said Marcel Smith, the hospital's director of environmental services.

"They remind you of 'Lost in Space,' " he said, referring to the futuristic TV show from the 1960s. Marcel emphasized that the robots do not replace hospital cleaning crews or the chemicals they use. Rather, the machines are an enhancement of the work cleaners do before deploying the robots.

When the hospital discharges a patient, the room gets the traditional scrubbing down from a cleaning crew. Then, one of the beeping and whirring robots is wheeled in to top off the job. They start in the restroom, running for four minutes, before being deployed first to one side of the bed, then the other.

Highland is the third Bay Area hospital to use the robots, after Stanford and Marin General, and the first in the East Bay.

But the robots disinfect in more than 400 hospitals, nursing facilities, outpatient surgery centers and long-term acute care facilities around the world, said Melinda Hart, of the manufacturing company Xenex.

Ultraviolet light has been used as a disinfectant for decades, she said. But what is different about Highland Hospital's "LightStrike" robots is that they use pulses of the inert gas xenon to create the light, producing an intense, full spectrum light that is more effective than what is produced by the traditional source, mercury bulbs.

Hospitals are trying to phase out mercury, a highly toxic element, Hart said. Mercury bulbs require 45 minutes to disinfect a space, whereas the xenon-produced light, killing across the entire germicidal spectrum, can do the job in four or five minutes.

The robots are WiFi-enabled, providing data that allows staff to track their progress, and equipped with motion detectors that, if triggered, switch the robots off until the room is cleared.

Mitch and Venus are primarily deployed in the hospital's nine-story acute care tower. Mitch's first responsibility is its 24 intensive care beds; Venus gets the operating rooms. After that, they go to work on the rest of the hospital's 169 beds, which are mostly in single rooms, a Highland Hospital spokesperson said. The robots also are dispatched to other sites around the four-building hospital campus as needed when they are available.

The light does not penetrate through solid surfaces beyond the thickness of plastic wrap, though, so its risk to people is primarily as an eye irritant. As a precaution, when the robots are working, there's a plastic cone outside the door with a sign on it, the spokesperson said, although incidental exposure to the robots' ultraviolet light is not considered cause for concern.

The robots have proven their mettle.

During the Ebola scare, the robots were used at Dallas' Texas Health Presbyterian Hospital to disinfect rooms where Ebola victims were treated. The robots also proved themselves in Veterans Administrations studies, safely disinfecting protective garments medical staff wear in treating the virus, Hart said, while workers were still wearing them. Disrobing from them is a 20-minute process some staff scrimp on, putting themselves at risk, she said.

The robots, though, were safe enough for staff to disinfect the garments before taking them off by exposing themselves to a five-minute blast of the robots' light.

The Ebola virus "is relatively easy to kill," Hart said. More challenging are some of the superbugs, such as clostridium difficile, known as C. diff, a frequent culprit in hospital-acquired infections.

Patients treated with antibiotics, especially older ones, can lose their natural ability to fend off the effects of C. diff, a common bacteria that is easily spread. Killing C. diff with bleach takes immersing it in the liquid for 10 minutes. Unchecked, the bug can survive for five months, Hart said.

Xenex's ultraviolet light, though, is routinely effective against C. diff. A study by Westchester Medical Center in New York published in the American Journal of Infection Control attributed a 70 percent reduction in C. diff infections to using the robots.

The robots have also been successful against MRSA (Methicillin-resistant Staphylococcus aureus), an antibiotic-resistant strain of staph bacteria that is another common hospital-acquired infection; norovirus; CRE (carbapenem-resistant Enterobacteriaceae); a family of germs that includes E.coli; and Anthrax.

The federal Centers for Disease Control estimates that hospital-acquired infections afflict one in every 25 hospital patients and prove fatal more than 10 percent of the time. Treatment expenses can quickly run into five figures, making a hospital's investment in robots a good value.

"In a perfect world, I'd have two more, one for each building," Highland's Smith said.

Source: <http://www.eastbaytimes.com/2017/05/05/germ-zapping-robots-find-a-home-at-highland-hospital/>

May 5th 2017